UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

APR 2 0 2018

REPLY TO THE ATTENTION OF:

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Carolyn Garrett, Plant Manager
Afton Chemical Corporation
501 Monsanto Avenue
Sauget, Illinois 62201

Re: Notice and Finding of Violation
Afton Chemical Corporation
Sauget, Illinois

Dear Ms. Garrett:

The U.S. Environmental Protection Agency is issuing the enclosed Notice and Finding of Violation (NOV/FOV) to Afton Chemical Corporation (you) under Section 113(a)(1) and (a)(3) of the Clean Air Act, 42 U.S.C. § 7413(a)(1) and (a)(3). We find that you are violating the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Synthetic Organic Chemical Manufacturing Industry at 40 C.F.R. Part 63, Subpart F; the NESHAP for Equipment Leaks at 40 C.F.R. Part 63, Subpart H; the NESHAP for Miscellaneous Organic Chemical Production and Processes at 40 C.F.R. Part 63, Subpart FFFF; your federally enforceable Construction and Operation permits; and Title V of the Clean Air Act at the facility located in Sauget, Illinois.

Section 113 of the Clean Air Act gives us several enforcement options. These options include issuing an administrative compliance order, issuing an administrative penalty order and bringing a judicial civil or criminal action.

We are offering you an opportunity to confer with us about the violations alleged in the NOV/FOV. The conference will give you an opportunity to present information on the specific findings of violation, any efforts you have taken to comply and the steps you will take to prevent future violations. In addition, in order to make the conference more productive, we encourage you to submit to us information responsive to the NOV/FOV prior to the conference date.

Please plan for your facility's technical and management personnel to attend the conference to discuss compliance measures and commitments. You may have an attorney represent you at this conference.

The EPA contact in this matter is Victoria Nelson. You may contact her at (312) 886-9481 or nelson.victoria@epa.gov to request a conference. You should make the request within 10 calendar days following receipt of this letter. We should hold any conference within 30 calendar days following receipt of this letter.

Sincerely,

Edward Nam
Director
Air and Radiation Division

Enclosure

cc:

Donna Ratkowski, Environmental Manager, Afton Chemical Corporation
Donna.Ratkowski@AftonChemical.com

Julie Armitage, Chief, Bureau of Air, Illinois Environmental Protection Agency
Julie.Armitage@Illinois.gov

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5

IN THE MATTER OF:	)	
	)	
Afton Chemical Corporation	)	**NOTICE AND FINDING OF**
Sauget, Illinois	)	**VIOLATION**
	)	**EPA-5-18-IL-08**
Proceedings Pursuant to	)	
the Clean Air Act,	)	
42 U.S.C. §§ 7401 et seq.	)	
	)	

NOTICE AND FINDING OF VIOLATION

The U.S. Environmental Protection Agency (EPA) is issuing this Notice and Finding of Violation under Sections 113(a)(1) and (a)(3) of the Clean Air Act (CAA or the Act), 42 U.S.C. § 7413(a)(1) and (a)(3). EPA finds that Afton Chemical Corporation (Afton) is violating the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Synthetic Organic Chemical Manufacturing Industry at 40 C.F.R. Part 63, Subpart F; the NESHAP for Equipment Leaks at 40 C.F.R. Part 63, Subpart H; the NESHAP for Miscellaneous Organic Chemical Production and Processes at 40 C.F.R. Part 63, Subpart FFFF; its federally enforceable Construction and Operation permits; and Title V of the CAA at the facility located at 501 Monsanto Avenue, Sauget, Illinois (the Facility). The relevant statutory and regulatory background, factual background, finding of violations, and environmental impact of these violations are set forth in detail below.

Statutory and Regulatory Authority

1. The Act is designed to, among other things, protect and enhance the quality of the nation's air so as to promote the public health and welfare and the productive capacity of its population. Section 101(b)(1) of the Act, 42 U.S.C. § 7401(b)(1).

National Emission Standards for Hazardous Air Pollutants

2. Section 112 of the Act, 42 U.S.C. § 7412, requires EPA to promulgate a list of all categories and subcategories of new and existing "major sources" and "area sources" of hazardous air pollutants (HAP) and establish emissions standards for the categories and subcategories. These emission standards are known as NESHAPs. EPA codified these NESHAPs at 40 C.F.R. Parts 61 and 63.

3. "Major source" is defined as "any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year (tpy) or more of any hazardous air pollutant or 25 tpy or more of any combination of hazardous air pollutants." 42 U.S.C. § 7412(a)(1).

4. "Stationary source" is defined as "any building, structure, facility, or installation, which emits or may emit any air pollutant." 42 U.S.C. § 7411(a)(3).

5. "Hazardous air pollutant" or HAP is defined as "any air pollutant listed in or pursuant to [Section 112(b) of the Act]". 42 U.S.C. § 7412(a)(6).

6. Section 112(i)(3) of the Act, 42 U.S.C. § 7412(i)(3), prohibits any person subject to a NESHAP from operating a source in violation of this NESHAP after its effective date. *See also*, 40 C.F.R. §§ 61.05 and 63.4.

7. 40 C.F.R. § 63.2 defines "affected source" as the collection of equipment, activities, or both within a single contiguous area and under common control that is included in source category or subcategory for which a standard is established.

8. 40 C.F.R. § 63.2 defines "new source" as any affected source the construction or reconstruction of which is commenced after EPA first proposes a relevant emission standard under 40 C.F.R. Part 63 establishing an emission standard applicable to such source.

9. 40 C.F.R. § 63.2 defines "existing source" as any affected source that is not a new source.

10. 40 C.F.R. § 63.2 defines "fugitive emissions" as those emissions from a stationary source that could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening. Under Section 112 of the Act, all fugitive emissions are to be considered in determining whether a stationary source is a major source.

11. On April 22, 1994, EPA promulgated the Hazardous Organic NESHAP or HON:

    a. The NESHAP for the Synthetic Organic Chemical Manufacturing Industry (SOCMI) at 40 C.F.R. Part 63, Subpart F (HON Subpart F). 59 Fed. Reg. 19454; and

    b. The NESHAP for SOCMI for Equipment Leaks at 40 C.F.R. Part 63, Subpart H (HON Subpart H). 59 Fed. Reg. 19568.

12. On November 10, 2003, EPA promulgated the NESHAP for Miscellaneous Organic Chemical Manufacturing or MON, codified at 40 C.F.R. Part 63, Subpart FFFF. 68 Fed. Reg. 63888.

<u>The HON – 40 C.F.R. Part 63, Subpart F</u>

13. 40 C.F.R. § 63.100 of the HON Subpart F provides applicability provisions, definitions, and other general provisions that are applicable to the Subparts F and H of the HON.

14. 40 C.F.R. § 63.100(b) provides that the provisions of Subparts F and H of the HON apply to chemical manufacturing process units that meet all the criteria specified in 40 C.F.R. § 63.100(b)(1), (b)(2), and (b)(3).

15. 40 C.F.R. § 63.100(b)(1) provides that a chemical manufacturing processing unit is subject to Subparts F and H of the HON if it manufactures as a primary product one or more of the chemicals listed in Table 1 of Subpart F. Alkylbenzene is listed in Table 1 of HON Subpart F.

16. 40 C.F.R. § 63.100(b)(2) provides that a chemical manufacturing processing unit is subject to Subparts F and H of the HON if it uses as a reactant one or more of the organic hazardous air pollutants listed in Table 2 of HON Subpart F. Benzene is listed in Table 2 of HON Subpart F.

17. 40 C.F.R. § 63.100(b)(3) provides that a chemical manufacturing processing unit is subject to Subparts F and H of the HON if it is located at a plant site that is a major source as defined in Section 112(a) of the Act, 42 U.S.C. § 7412(a).

18. An "equipment leak" is defined as emissions of organic HAP from a connector, pump, compressor, agitator, pressure relief device, sampling connection system, open-ended valve or line, valve, surge control vessel, bottoms receiver, or instrumentation system in organic HAP service as defined in 40 C.F.R. § 63.161. 40 C.F.R. § 63.101(b).

19. "Chemical manufacturing process unit" means the equipment assembled and connected by pipes or ducts to process raw materials and to manufacture an intended product. For the purpose of Subpart F of the HON, chemical manufacturing process unit includes air oxidation reactors and their associated product separators and recovery devices; reactors and their associated product separators and recovery devices; distillation units and their associated distillate receivers and recovery devices; associated unit operations; associated recovery devices; and any feed, intermediate and product storage vessels, product transfer racks, and connected ducts and piping. A chemical manufacturing process unit includes pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, instrumentation systems, and control devices or systems. A chemical manufacturing process unit is identified by its primary product. 40 C.F.R. § 63.101(b).

20. 40 C.F.R. § 63.102(a) states that owners and operators of sources subject to the HON Subpart F shall comply with the requirements of the HON Subpart H.

The HON – 40 C.F.R. Part 63, Subpart H

21. The provisions of the HON Subpart H apply to affected pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, surge control vessels, bottoms receivers, instrumentation systems, and control devices or closed vent systems in organic HAP service 300 hours or more during the calendar year within a source subject to HON Subpart F. 40 C.F.R. § 63.160(a).

22. "In organic HAP service" means a piece of equipment that either contains or contacts a fluid (liquid or gas) that is at least 5 percent by weight of total organic as determined according to Method 18 of 40 C.F.R. Part 60, Appendix A-6, and 40 C.F.R. § 63.180(d). The provisions of

40 C.F.R. § 63.180(d) also specify how to determine that a piece of equipment is not in organic HAP service. 40 C.F.R. § 63.161. *See also,* 40 C.F.R. § 63.2550.

23. "In gas/vapor service" means that a piece of equipment in organic HAP service contains a gas or vapor at operating conditions. 40 C.F.R. § 63.161.

24. "In light liquid service" means that a piece of equipment in organic hazardous air pollutant service contains a liquid that meets the following conditions: (1) The vapor pressure of one or more of the organic compounds is greater than 0.3 kilopascals at 20 °C; (2) The total concentration of the pure organic compounds constituents having a vapor pressure greater than 0.3 kilopascals at 20 °C is equal to or greater than 20 percent by weight of the total process stream; and (3) The fluid is a liquid at operating conditions. 40 C.F.R. § 63.161.

25. "In vacuum service" means that equipment is operating at an internal pressure which is at least 5 kilopascals below ambient pressure. 40 C.F.R. § 63.161.

26. "Process unit" means a chemical manufacturing process unit as defined in the HON Subpart F or a process subject to another subpart in 40 C.F.R. Part 63 that references the HON Subpart F.

27. The HON Subpart H provides that a leak is detected if an instrument reading of 10,000 ppm or greater for agitators, 5,000 ppm or greater for pumps handling polymerizing monomers, 2,000 ppm or greater for all other pumps (including pumps in food/medical service), or 500 ppm or greater for valves, connectors, instrumentation systems, and pressure relief devices is measured. 40 C.F.R. § 63.169(b).

28. 40 C.F.R. § 63.174(a) requires that each owner or operator of a process unit subject to the HON Subpart H monitor all connectors in gas/vapor and light liquid service at the intervals specified in 40 C.F.R. § 63.174(b), with some exceptions

29. 40 C.F.R. § 63.174(b) provides that the owner or operator shall monitor for leaks at the interval specified in either 40 C.F.R. § 63.174(b)(1) and (b)(3).

30. 40 C.F.R. § 63.174(b)(1) provides that for each group of existing process units within an existing source, by no later than 12 months after the compliance date, the owner or operator shall monitor all connectors, with some exceptions.

31. 40 C.F.R. § 63.174(b)(3) provides that after conducting the initial survey required in 40 C.F.R. § 63.174(b)(1), the owner or operator shall perform all subsequent monitoring of connectors at the frequencies specified in 40 C.F.R. § 63.174(b)(3)(i), with some exceptions.

32. 40 C.F.R. § 63.174(b)(3)(i) provides that the owner or operator shall perform subsequent monitoring of connectors once per year, if the percent leaking connectors in the process unit was 0.5 percent or greater during the last required annual or biennial monitoring period.

33. 40 C.F.R. § 63.180(b)(1) provides that monitoring, as required under the HON Subpart H, shall comply with Method 21 of 40 C.F.R. Part 60, Appendix A-7.

34. 40 C.F.R. Part 60, Appendix A-7 § 1.2 states that Method 21 is "applicable for the determination of volatile organic compound (VOC) leaks from process equipment. These sources include, but are not limited to, valves, flanges and other connections, pumps and compressors, pressure relief devices, process drains, opened-ended valves, pumps and compressor deals systems degassing vents, accumulator vessel vents, agitator deals, and access door seals."

35. 40 C.F.R. Part 60, Appendix A-7 § 8.3.1 states that Method 21 includes sampling "the interface where leakage is indicated until the maximum meter reading is obtained" if an increased meter reading is observed. Method 21 also includes, "if the maximum observed meter reading is greater than the leak definition in the applicable regulation, record[ing] and report[ing] the results as specific in the regulation reporting requirements."

The MON – 40 C.F.R. Part 63, Subpart FFFF

36. 40 C.F.R. § 63.2445(b) provides that owners and operators of existing sources subject to the MON must comply with the requirements for existing sources no later than May 10, 2008.

37. 40 C.F.R. § 63.2435(a) provides that the MON applies to owners or operators of miscellaneous organic chemical manufacturing process units (MCPU) that are located at, or are part of, a major source of HAP emissions as defined in Section 112(a) of the CAA.

38. 40 C.F.R. § 63.2550 defines "miscellaneous organic chemical manufacturing process" as all equipment which collectively function to produce a product or isolated intermediate that is "material" described in 40 C.F.R. § 63.2435(b). Process includes any, all or a combination of reaction, recovery, separation, purification, or other activity, operation, manufacture, or treatment which are used to produce a product or isolated intermediate.

39. 40 C.F.R. § 63.2435(b) provides that a MCPU includes equipment necessary to operate a miscellaneous organic chemical manufacturing process that, among other things, processes, uses or generates any of the organic HAPs listed in Section 112(b) of the Act. A MCPU also includes any assigned storage tanks and transfer racks; equipment in open systems that is used to convey or store water having the same concentration and flow characteristics as wastewater; and equipment such as pumps, compressors, agitators, pressure relief devices, sampling connection systems, open ended valves or lines, valves, connectors, and instrumentation systems that are used to manufacture an organic chemical with an SIC code listed in 40 C.F.R. § 63.2435(b)(1)(i).

40. 40 C.F.R. § 63.2550 defines "in organic HAP service" to mean a piece of equipment that either contains or contacts a fluid (liquid or gas) that is at least 5 percent by weight of total organic as determined according to Method 18 of 40 C.F.R. Part 60, Appendix A-6. *See also,* 40 C.F.R. § 63.180(d)(1).

41. 40 C.F.R. § 63.2480 and Table 6 to Subpart FFFF list the requirements for leaks for equipment that is in organic HAP service, and include the standards set forth in the HON Subpart H.

42. "Wastewater" means water that is discarded from an MCPU or control device through a point of determination and that contains either: an annual average concentration of compounds in Tables 8 and 9 to this subpart of at least 5 parts per million weight (ppmw) and has an annual average flowrate of 0.02 liters per minute or greater; or an annual average concentration of compounds in Tables 8 and 9 to the MON of at least 10,000 ppmw at any flowrate. Wastewater means process wastewater or maintenance wastewater. 40 C.F.R. § 63.2550.

43. Table 8 to the MON lists benzene and n-hexane as partially soluble HAP in wastewater subject to management and treatment requirements.

44. Table 9 to the MON lists methanol as a soluble HAP in wastewater subject to management and treatment requirements.

Illinois State Implementation Plan

45. Section 502(a) of the CAA, 42 U.S.C. § 7661a(a), states "[a]fter the effective date of any permit program approved or promulgated under [Title V], it shall be unlawful for any person to violate any requirement of a permit issued under this subchapter, or to operate...a major source...except in compliance with a permit issued by a permitting authority under [Title V]."

46. 40 C.F.R. § 70.7(b) states "...no part 70 source may operate after the time that it is required to submit a timely and complete application under an approved permit program, except in compliance with a permit issued under a part 70 program."

47. Under 40 C.F.R. § 52.23, any permit limitation or condition contained within a permit issued under an EPA-approved program that is incorporated in a State Implementation Plan (SIP) is a requirement of the SIP, and is federally enforceable under Section 113 of the CAA, 42 U.S.C. § 7413.

48. EPA approved Title 35, Part 201 "Permits and General Conditions" of the Illinois Administrative Code (IAC) as part of the federally enforceable SIP for the State of Illinois on May 31, 1972. 37 Fed. Reg. 10862. Since then, EPA has approved several revisions of 35 IAC Part 201 into the Illinois SIP.

49. EPA approved the Illinois Title V Permit program, effective March 7, 1995. 60 Fed. Reg. 12478 (March 7, 1995). Illinois' Title V Permit program requirements are codified at 35 IAC Part 270.

Afton's Construction and Title V Permits

50. The Illinois Environmental Protection Agency (IEPA) issued a Construction Permit, No. 06020100, to Afton for the Facility on February 29, 2008 (2008 Construction Permit).

51. The 2008 Construction Permit contains synthetic minor HAP limits for the Facility's operations that are based on Afton's construction of a flare at the Facility.

52. Section 2.1.b. of the 2008 Construction Permit states the emissions of HAP from the source "shall not exceed 0.75 tons/month and 7.5 tons per year of any individual HAP or 2.5 tons/month [and] 24.5 tons per year of any combination of such HAPs."

53. Section 1.4.b. of the 2008 Construction Permit limits HAP emissions from Unit 270 to the following:

	Unit 270, Tons Per Month Limit	Unit 270, Tons Per Year Limit
N-Hexane	1.0	7.0
Methanol	1.0	7.0
Individual HAP (Other than Methanol or Hexane)	0.2	1.0
Total HAPs	2.5	15.0

54. Section 1.a.ii. of the 2008 Construction Permit states that the installation of a new flare system for Unit 270 will reduce the level of HAP from the source "so as to not be subject to the emission control requirements of the [MON], which has a compliance date for existing sources of May 10, 2008."

55. IEPA issued a Title V Permit, No. 95120012, to Afton for the Facility on December 17, 2009 (2009 Title V Permit).

56. The 2009 Title V Permit contains a set of source conditions listed under Section 5 "Overall Source Conditions" that apply to the entire Facility.

57. Condition 5.1.2. states that the 2009 Title V Permit is issued based on the source being a synthetic minor source of HAPs.

58. Condition 5.2.7.b. of the 2009 Title V Permit states that Afton is subject to the HON Subpart F because Afton operates a chemical manufacturing unit which manufactures alkylbenzene as a primary product.

59. Condition 5.2.7.c. of the 2009 Title V Permit states that Afton is subject to the HON Subpart H because this source operates a chemical manufacturing unit which manufactures alkylbenzene as a primary product. The provisions of HON Subpart H apply to all equipment (i.e., each pump, compressor, agitator, pressure relief device, sampling connection system,

open-ended valve or line, valve, and connector, surge control vessels, bottoms receiver, instrumentation system, and control device or system) that is intended to operate in organic HAP service 300 hours or more during the calendar year within a source subject to the HON Subpart F.

60. Condition 5.3.a. of the 2009 Title V Permit states that Afton is not subject to the requirements of the MON because Afton's HAP emissions have been limited to less than 10 tpy of any single HAP and 25 tpy of all HAPs combined due to the installation of a Flare Control System for Unit 270.

61. Condition 5.5.2.a.i. of the 2009 Title V Permit states that emissions of HAPs from emission units at Afton other than Unit 270 shall not exceed 0.2 tons/month and 2.0 tons/year, each, for both n-hexane and methanol, 1.0 tons/month and 8.0 tons/year for any individual HAP other than n-hexane and methanol, and 1.0 tons/month and 9.5 tons/year of any combination of HAPs.

62. Condition 5.5.2.a.ii. of the 2009 Title V Permit states that total emissions of HAP from Afton shall not exceed 1.2 tons/month of any individual HAP, 3.5 tons/month of total HAPs, 9.5 tons/year of any individual HAP, and 24.5 tons/year of any combination of all such HAPs. These limitations contain revisions to the 2008 Construction Permit.

63. Condition 5.9.1.a. of the 2009 Title V Permit provides that "for the purpose of estimating [volatile organic matter or] VOM emissions from the organic chemical manufacturing processes, the following methods, in addition to AP-42 emission factors, are acceptable: (...) (ii) [f]or the purpose of estimating fugitive and non-fugitive VOM emissions from chemical manufacturing processes at [Afton], engineering estimates based on stack tests, process simulations, or mass balance is acceptable. (iii) [f]or the purpose of estimating fugitive VOM from leaking components at the facility, the average emissions factor approach found in USEPA's document 'Protocol for Equipment Leak Emission Estimate' (EPA-453/R-93-026, June 1993), is acceptable."

64. To present standard procedures for estimating mass fugitive emissions from equipment leaks, EPA originally developed the Protocol for Equipment Leak Emission Estimates in 1993, and an update was made to the protocol in 1995 (EPA-453/R-95-017, November 1995) (the 1995 Protocol).

65. The 2009 Title V Permit also contains a set of unit specific conditions listed under Section 7 that apply to specific emission units at the Facility.

66. Condition 7.1.3.e. of the 2009 Title V Permit states that the affected Unit 258 reactor systems are subject to the HON Subpart F.

67. Condition 7.1.3.g. of the 2009 Title V Permit states that the affected Unit 258 reactor systems are subject to the HON Subpart H (*See* Conditions 5.4.1, 5.6.2, and 5.7.4. of the 2009 Title V Permit).

68. Condition 7.19.6.b. of the 2009 Title V Permit states that HAP emissions from Unit 270 shall not exceed the following limits:

	Unit 270, Tons Per Month Limit	Unit 270, Tons Per Year Limit
N-Hexane	1.0	7.0
Methanol	1.0	7.0
Individual HAP (Other than Methanol or Hexane)	0.2	1.0
Total HAPs	2.5	15.0

Findings of Fact

69. Afton owns and operates the Facility located at 501 Monsanto Avenue, Sauget, Illinois.

70. The Facility is a chemical manufacturing plant that produces a range of products for use in commercial and diesel engines. The chemicals that Afton processes at the Facility include, but are not limited to, methanol, n-hexane, and benzene, which are all HAPs listed under Section 112(b) of the Act, 42 U.S.C. § 7412(b).

71. Afton's Title V and Construction Permits include terms and conditions designed to limit HAP emissions below Title V and major source thresholds. These terms and conditions are federally enforceable pursuant to 35 IAC Parts 270 and 201.

72. On October 23 through 26, 2017, EPA conducted a CAA inspection at the Facility (Inspection).

HON Subparts F and H

Applicability

73. Afton owns and operates a chemical manufacturing processing unit that manufactures alkylbenzene, a primary product chemical listed in Table 1 of Subpart F.

74. Afton owns and operates a chemical manufacturing processing unit that uses benzene as a reactant, an organic HAP listed in Table 2 of Subpart F.

75. Afton owns and operates a chemical manufacturing processing unit located at a plant site that is a major source of HAP, as demonstrated below. Thus, Afton owns and operates a chemical manufacturing processing unit (Unit 258) at the Facility that is subject to Subpart F of the HON.

76. Afton operates equipment at the Facility that includes, but is not limited to pumps, connectors, valves, and pressure relief devices that operate in HAP service for 300 hours or more during the calendar year, and are therefore subject to HON Subpart H. Unit 258 operates in organic HAP service and is subject to the HON Subpart H.

Unit 258

77. During the Inspection, Afton provided EPA with the Facility's leak, detection, and repair database for equipment monitored at the Facility since 2012 (LDAR Database). The LDAR Database included monitoring data for compliance with the requirements of HON Subpart H.

78. Afton monitors each connector in Unit 258 annually and submits semi-annual reports that include the number of connectors monitored in the reporting period, the number of leaking connectors found, and the corresponding leak rates for affected connectors in Unit 258. Table A contains a summary from Afton's semi-annual reports submitted for July 2013 to December 2016. The connector leak rate was reported as 0.0 percent for 2013 and 2014 and 0.04 percent for 2015 and 2016.

Table A – Summary of Unit 258 Connector Monitoring and Connector Leaks for 2013 – 2016

Semi-annual Reporting Period	**Number of Connectors Monitored**	**Number of Reported Connector Leaks**	**Reported Leak Rate**
July – December 2013	2,773	0	0.0%
January – June 2014	47	0	0.0%
July – December 2014	2,388	0	0.0%
January – June 2015	0	--	--
July – December 2015	2,329	1	0.04%
January – June 2016	0	--	--
July – December 2016	2,329	1	0.04%

79. During the Inspection, EPA conducted LDAR monitoring per EPA Reference Method 21 in Unit 258.

80. Unit 258 operates on a batch schedule and has equipment that is placed under vacuum during various stages of the process for various periods of time. During the Inspection, EPA coordinated with the Unit 258 process operators to confirm reactors and process equipment were in organic HAP service and not under vacuum at the time EPA conducted LDAR monitoring per Method 21 for Unit 258. Process operators further informed EPA inspectors that setting these conditions (i.e., in organic HAP service and not under vacuum) was not part of a standard review done by Afton's LDAR contractors.

81. During the Inspection, EPA detected 4 leaking connectors out of 345 inspected connectors, a 1.16 percent leak rate, in Unit 258. Table B shows EPA's leak monitoring results during the Inspection:

Table B – Leak Rate Details from Leak Monitoring Results Conducted by EPA During October 2017 Inspection in Unit 258

Components	**Identification (Description Given by Afton)**	**EPA measurement (ppm)**	**Confirmation measurement (ppm)**
Connector	ID 1346, suction off Tank 589	699	637
Connector	ID 1357-005, below Valve 1357	600	737
Connector	ID 1467-009, on Reactor 105	600, visual drip	550
Connector	ID 1725-001, on benzene storage Tank 580 at flange to conservation vent	667	-

HAP Emissions

Fugitive Emissions from Process Equipment

82. On March 12, 2018, Afton provided EPA with the emission totals: methanol and n-hexane annual process unit and fugitive emission totals for Unit 270; benzene annual process unit and fugitive emissions for Unit 258; and facility-wide annual process-based and fugitive total HAP emissions. Table C summarizes the HAP emissions data provided to EPA.

Table C – Annual Process and Fugitive HAP Emissions Reported

Year*	**Methanol Emissions Reported (tpy)**	**n-Hexane Emissions Reported (tpy)**	**Benzene Emissions Reported (tpy)**	**Other HAP Emissions Reported (tpy)**	**Total HAP Emissions Reported (tpy)**
2013	6.14	6.14	0.32	5.21	17.81
2014	4.67	6.69	0.37	4.18	15.91
2015	3.04	7.93	0.34	5.92	17.23
2016	2.66	6.19	0.33	2.78	11.96

*Data from 2017 has not been finalized.

83. On March 12, 2018, Afton provided EPA with the component types and number of components that operate in organic HAP service at the Facility, by process unit. The information included the hours the components are in service and the weight percentage HAP processed in the components. The component type and count was used by Afton to estimate fugitive HAP emissions. Table D summarizes the fugitive HAP emissions data provided to EPA.

Table D – Annual Fugitive HAP Emissions Reported

Year*	Unit 270 Fugitive Methanol Emissions (tpy)	Unit 270 Fugitive n-Hexane Emissions (tpy)	Unit 258 Fugitive Benzene Emissions (tpy)	Other Facility-wide HAP Emissions Reported (tpy)	Facility-wide Fugitive HAP Emissions Reported (tpy)
2013 – 2016	0.15	0.4	0.008	0.081	0.67

*Data from 2017 has not been finalized.

84. During the Inspection, EPA requested the supporting materials used to calculate the HAP emissions from the Facility's process operations and Facility-wide fugitive emissions, reported in Paragraph 83. A copy of a 1989 bagging study was provided to EPA on December 12, 2017, detailing a facility specific, fugitive emissions study for equipment in methanol and benzene service (1989 Bagging Study).

85. On January 5, 2018, Afton confirmed to EPA that it does not use the average emissions factor approach, found in the 1995 Protocol, for estimating fugitive emissions from leaking components at the Facility. Afton uses lower emission factors developed from the 1989 Bagging Study to estimate fugitive emissions from equipment in methanol and benzene service. Afton applies a 92 percent reduction to EPA's average emission factors for all other units in HAP service, excluding in methanol or benzene service. Afton uses the 1989 Bagging Study to support the reduction of the EPA's average emissions factor for equipment across its Facility.

86. Afton's 1989 Bagging Study does not meet the basic requirements of the 1995 Protocol that details the scenarios under which a bagging study is appropriate and the methodology for conducting a bagging study for reliable emission estimates. The Protocol is specifically referred to in the 2009 Title V Permit.

87. Using the average emissions factor approach, found in the 1995 Protocol, and the information provided by Afton, referenced in Paragraph 83, EPA estimated fugitive n-hexane, methanol, benzene and other HAP emissions. Table E summarizes EPA's fugitive HAP emissions estimates.

Table E – EPA Estimate of Afton's Annual Fugitive HAP Emissions

Year*	Unit 270 Fugitive Methanol Emissions (tpy)	Unit 270 Fugitive n-Hexane Emissions (tpy)	Unit 258 Fugitive Benzene Emissions (tpy)	Facility-wide Other HAP Emissions** (tpy)	Total Facility-wide Fugitive HAP Emissions Reported (tpy)
2013 – 2016	4.48	4.2	5.94	1.69	16.31

*Data from 2017 has not been finalized.

**EPA estimated Afton's facility-wide other HAP emissions using Afton's component counts identified in Paragraph 83, 5 weight percent HAP concentration, and 8,000 hours of operation.

88. Using Afton's reported process and fugitive emissions, as shown in Table C above (less the fugitive emissions, as showed in Table D above), totaled with EPA's fugitive emission estimates, as shown in Table E above, Afton emitted the following HAP (process and fugitives).

Table F – Afton Annual HAP Emissions

Year*	Methanol Emissions (tpy)	n-Hexane Emissions (tpy)	Benzene Emissions (tpy)	Other HAP Emissions (tpy)	Total HAP Emissions (tpy)
2013	10.47	9.94	6.25	6.79	33.45
2014	9.00	10.49	6.30	5.76	31.55
2015	7.37	11.73	6.27	7.50	32.87
2016	6.99	9.99	6.26	4.36	27.60

*Data from 2017 has not been finalized.

89. From 2008 to the present, Afton's total emissions for HAP, including fugitive HAP emissions, have exceeded 25 tpy for all HAP emissions. Thus, the Facility is a major source of HAP.

Wastewater Emissions

90. Afton discharges its process wastewater to a publicly owned wastewater treatment (POTW) facility.

91. During the Inspection and on January 5, 2018, Afton submitted to EPA periodic water sampling reports from the POTW for the process wastewater Afton discharges. These reports include a selection of sampling events occurring between November 2016 and November 2017 and identify a number of pollutants, included methanol and methyl isobutyl ketone.

Afton's Facility generates process wastewater in excess of 80 ppm of methanol from Unit 270.

92. During the Inspection, EPA used an optical gas imaging camera and took videos of continuous streams of volatile emissions at two on-site sewer grates north of the Facility's lab.

93. During the Inspection, Afton confirmed it evacuates steam condensate lines to its drain system, potentially volatilizing organic HAP constituents of its process wastewater.

94. During the Inspection, EPA collected air samples above two separate, sewer grates adjacent to the Facility. Afton confirmed the grates were at drains through which it discharged to the POTW. The analysis of EPA's air samples by the Chicago Regional Laboratory showed levels of select VOC and HAP constituents, including up to 22 ppm of methyl isobutyl ketone. Concurrent with air sample collection, EPA measured flame ionization detector readings of 1,422 and 1,303 ppm at the two separate sewer grates adjacent to the Facility.

95. According to the POTW water sampling reports, identified in Paragraph 91, and EPA's air sampling, identified in Paragraph 94, Afton's wastewater also contains methyl isobutyl ketone. On January 5, 2018, Afton confirmed that it does not account for methyl isobutyl ketone emissions from its operations to calculate its process HAP emission totals, nor does it account for HAP emissions from its entire drain system.

Violations

The HON – 40 C.F.R. Part 63, Subparts F and H

96. Based on EPA's leak rate reported in Paragraph 81, Afton failed to follow EPA Reference Method 21 of 40 C.F.R. Part 60, Appendix A-7. Specifically, Afton failed to sample the valve interface where the leakage is indicated until the maximum meter reading is obtained, as required by 40 C.F.R. Part 60, Appendix A-7 § 8.3.1. This is a violation of the requirements at 40 C.F.R. § 63.180(b).

97. By failing to ensure that components subject to the HON Subpart H are not in vacuum service and are operating in gas/vapor or light liquid service, as described in Paragraph 80, Afton has failed to comply with the monitoring requirements for pumps, valves, agitators, and connectors at 40 C.F.R. §§ 63.163(a), 63.168(a), 63.173(a), and 63.174(a).

The MON – 40 C.F.R. Part 63, Subpart FFFF

98. From May 10, 2008 to the present, Afton has been a major source of HAP, as described in Paragraphs 88 - 89, and therefore required to comply with the requirements of the MON at 40 C.F.R. Part 63, Subpart FFFF. Afton has failed to comply with the requirements of the MON, which include emission standards, requirements to demonstrate initial and continuous compliance with emission limits, operating limits, work practice standards, and recordkeeping requirements associated with miscellaneous organic chemical manufacturing, in violation of Section 112 of the Act, 42 U.S.C. § 7412.

Construction and Title V Permits

99. Afton has exceeded its limit for methanol emissions from Unit 270 for the years 2013-2015, as shown in Table F and the Tables set forth in Paragraphs 53 and 68 above, in violation of its 2009 Title V Permit at Condition 7.19.6.b.; its 2008 Construction Permit at Section 1.4.b.; and Section 112 of the Act, 42 U.S.C. § 7412.

100. Afton has exceeded its limit for n-hexane emissions from Unit 270 for the years 2013-2016, as shown in Table F and the Tables set forth in in Paragraphs 53 and 68 above, in violation of its 2009 Title V Permit at Condition 7.19.6.b.; its 2008 Construction Permit at Section 1.4.b.; and Section 112 of the Act, 42 U.S.C. § 7412.

101. Afton has exceeded its limit for total HAP emissions for the years 2013-2016, as described in Paragraphs 52 and 62 and shown in Table F above, in violation of its 2009 Title V Permit at Condition 5.5.2.a.ii.; its 2008 Construction Permit at Section 2.1.b.; and Section 112 of the Act, 42 U.S.C. § 7412.

Environmental Impacts

102. VOC emissions increase the amount of pollutants that have the ability to create photochemical smog under certain conditions.

103. HAP emissions increase the amount of pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, and/or adverse environmental effects.

4/20/18
Date

Edward Nam
Director
Air and Radiation Division

CERTIFICATE OF MAILING

I certify that I sent a Notice and Finding of Violation, No. EPA-5-18-IL-08, by Certified Mail, Return Receipt Requested, to:

Carolyn Garrett, Plant Manager
Afton Chemical Corporation
501 Monsanto Ave
Sauget, Illinois 62201

I also certify that I sent e-copies of the Notice and Finding of Violation by E-mail to:

Donna Ratkowski
Afton Chemical Corporation
Donna.Ratkowski@AftonChemical.com

Julie Armitage, Chief
Bureau of Air, Illinois Environmental Protection Agency
Julie.Armitage@Illinois.gov

On the 23rd day of April 2018

Kathy Jones

Kathy Jones
Program Technician
AECAB, PAS

CERTIFIED MAIL RECEIPT NUMBER: 7009 1680 0000 7641 3381